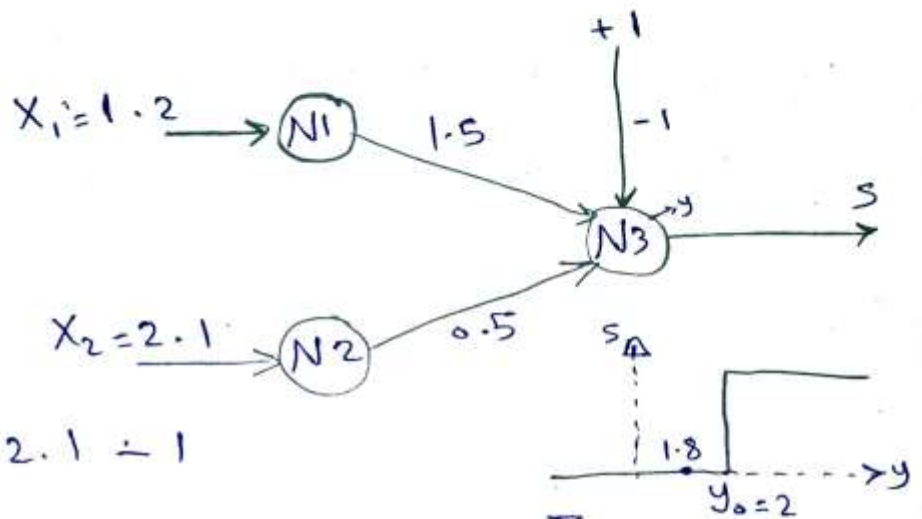


1



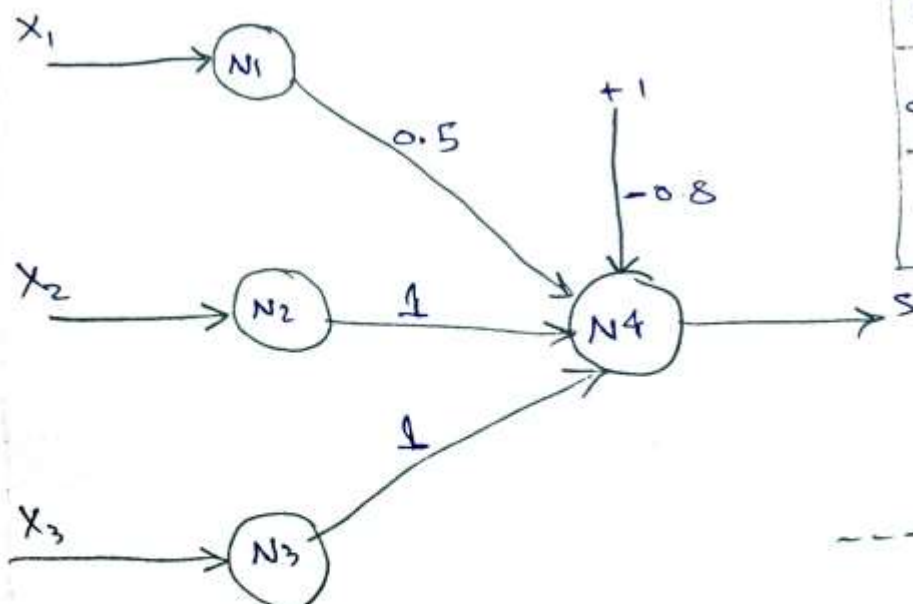
$$y = 1.5 \times 1.2 + 0.5 \times 2.1 \div 1$$

$$= 1.8$$

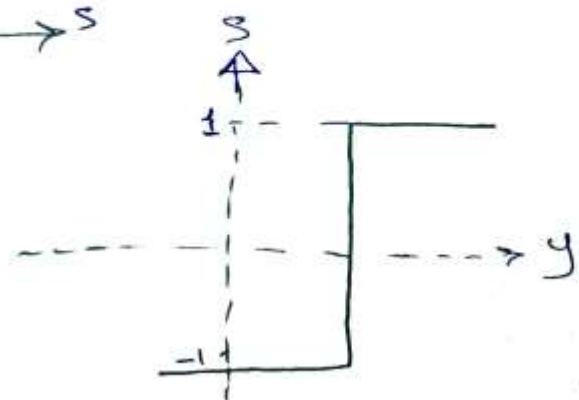
نتیجه عارضة دی و نتایج عند $(y=1.8)$ ال S تساوی

$$S - y = 0$$

2



X_1	X_2	X_3	S
0.8	0.4	1.5	-1
0.9	1.2	1.4	-1
1.7	0.6	1.9	1



$$\textcircled{1} \quad X_1 = 0.8, \quad X_2 = 0.9, \quad X_3 = 1.5$$

$$y_1 = 0.8 \times 0.5 + 0.9 \times 1 + 1.5 \times 1 - 0.8$$

$$y_1 = 1.5 \longrightarrow S \text{ required to be } -1$$

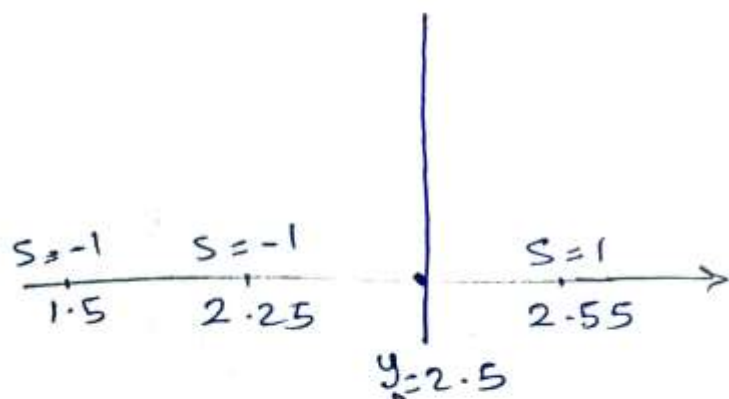
$$\textcircled{2} \quad X_1 = 0.9, \quad X_2 = 1.2, \quad X_3 = 1.4$$

$$y_2 = 0.9 \times 0.5 + 1.2 \times 1 + 1.4 \times 1 - 0.8$$

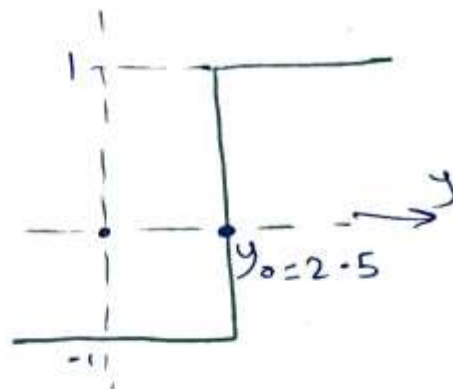
$$y_2 = 2.25 \longrightarrow S \text{ required to be } -1$$

$$\textcircled{3} \quad X_1 = 1.7, \quad X_2 = 0.6, \quad X_3 = 1.9$$

$$\therefore y = 2.55 \longrightarrow S = \text{req. to be } 1$$



\Rightarrow



$\boxed{2}$

نفس المثال السابقه لكن غير قيمة X_3 في ثالث 3

صف من 1.9 ← 1.3

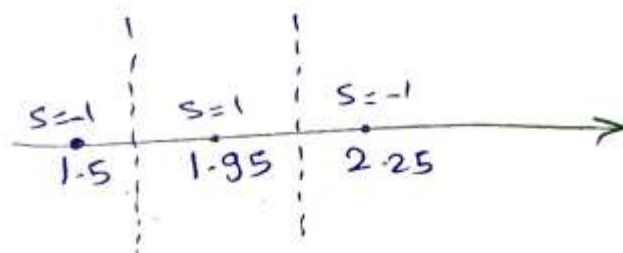
$$y_0 = ?$$

→ أول حالتين ثابتين

$$y_1 = 1.5 \rightarrow S = -1$$

$$y_2 = 2.25 \rightarrow S = -1$$

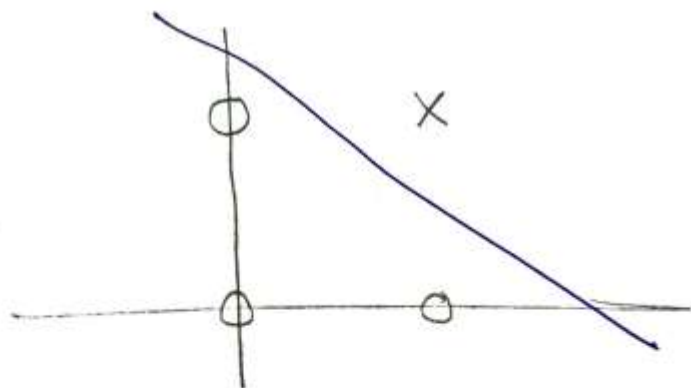
but: $y_3 = 1.95 \rightarrow S = 1$



له مش مقدار أفضل بخط واحد. متغير في ال (weights)

له مش في كل الحالات مقدار y_0 لها تفعل بينهم

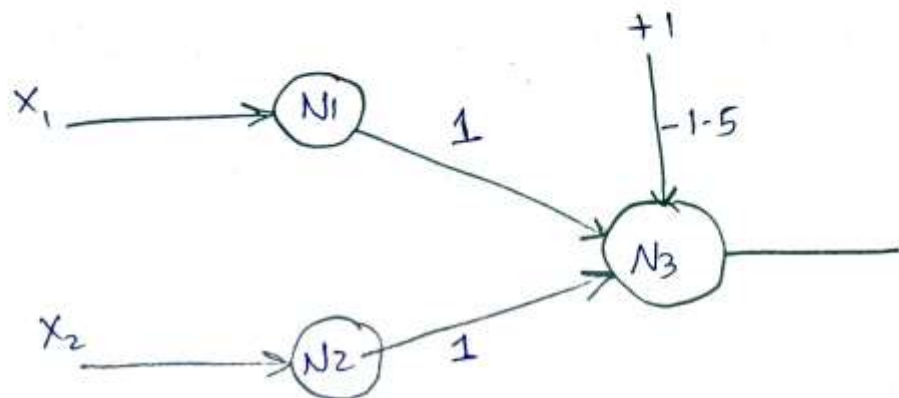
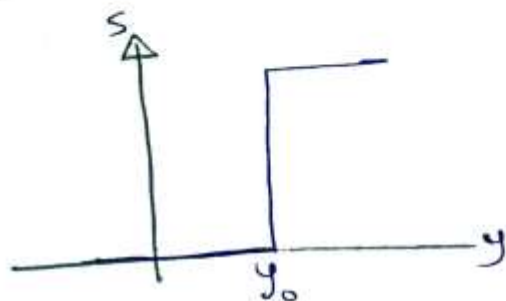
4 Design And



X_1	X_2	S
0	0	0
0	1	0
1	0	0
1	1	1

بأقي حلها موجودة في Sec 1.2

5



y_0 اللى فى الشكل هو (OR Gate) حالا الـ

$$y = X_1 + X_2 - 1.5$$

① $X_1 = 0$ & $X_2 = 0$

$$y = -1.5 \rightarrow S = 0$$

② $X_1 = 0$ & $X_2 = 1$

$$y = -0.5 \rightarrow S = 1$$

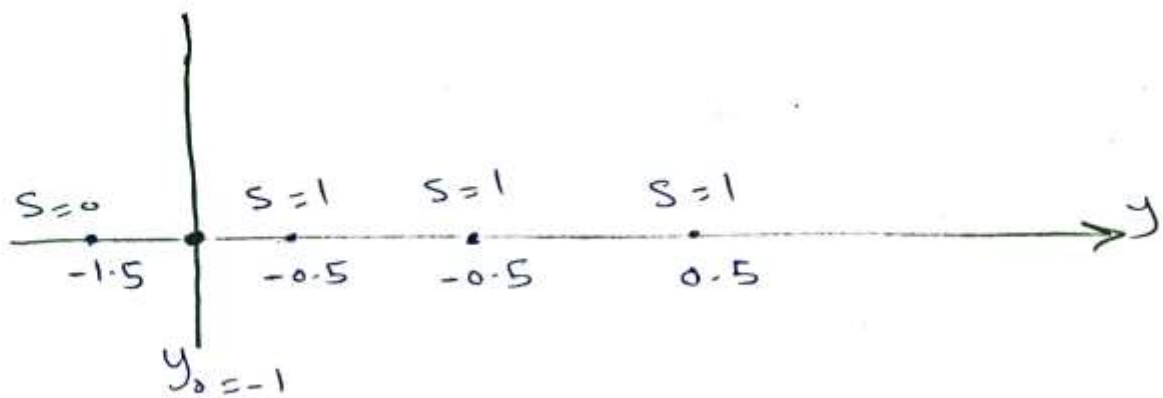
③ $X_1 = 1$ & $X_2 = 0$

$$y = -0.5 \rightarrow S = 1$$

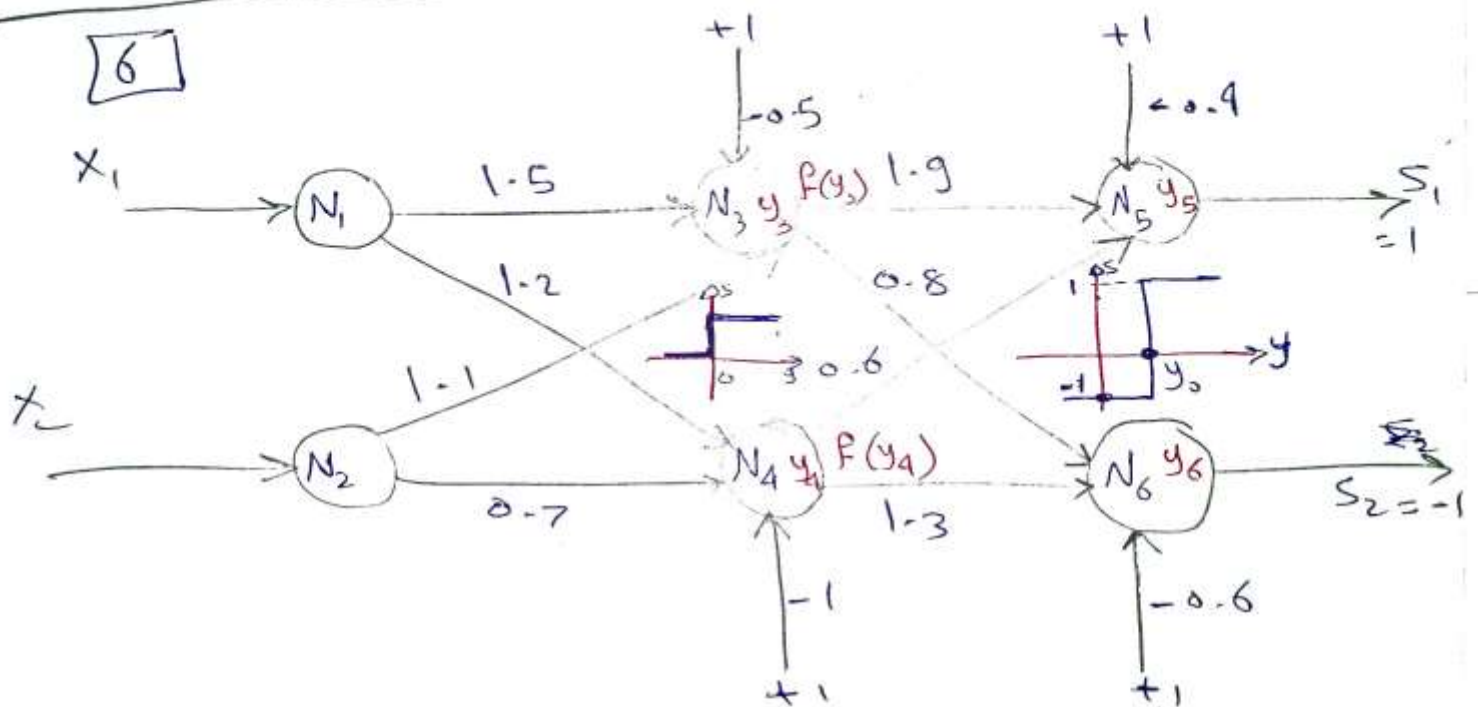
④ $X_1 = 1$ & $X_2 = 1$

$$y = 0.5 \rightarrow S = 1$$

X_1	X_2	S
0	0	0
0	1	1
1	0	1
1	1	1



(And) لو غيرت y_0 من -1 الى 0 متحول الى $0R$ الى 1



if ~~x_1~~ x_2 $x_1 = 1$, $x_2 = 2$, $S_1 = 1$, $S_2 = -1$
find y_0 .

$$y_3 = 1.5 \times 1 + 1.1 \times 2 - 0.5 = 3.2 > 0$$

$$f(y_3) = 1$$

$$y_4 = 1.2 * 1 + 0.7 * 2 - 1$$

$$= 1.6 > 0$$

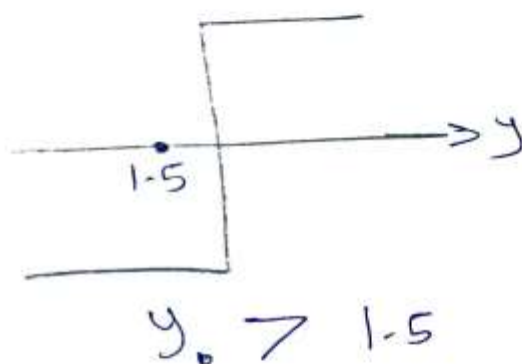
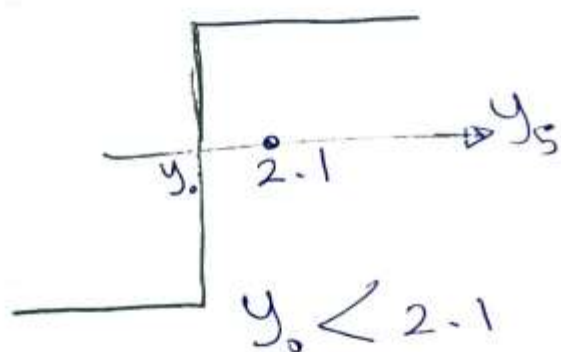
$$P(y_4) = 1$$

$$y_5 = 1.9 P(y_3) + 0.6 P(y_4) - 0.4$$

$$= 1.9 + 0.6 - 0.4 = 2.1 \rightarrow \boxed{S=1}$$

$$y_6 = 0.8 P(y_3) + 1.3 P(y_4) - 0.6$$

$$y_6 = 1.5 \rightarrow S = -1$$



so y_0 is :

$$1.5 < y_0 < 2.1$$